

***DETAILED ACTION***

***EXAMINER'S AMENDMENT***

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unaccepted to applicant, an amendment may be filed as provided by 37 CFR 1,312. To ensure consideration of such an amendment, it **MUST** be submitted no longer later than the payment of the issue fee.
2. Authorization for this examiner's amendment for claims 1 and 8 (Cancelled claims 2-7 and 9-12) was given in a telephone interview with Mr. Tracy M. Heims (phone number (206) 664-0314 and Registration Number 53,010) for applicant on January 15, 2009.
3. The instant Examiner's amendment is directed to said entered amendment.
4. Please amend the application as follows:

**IN THE CLAIMS**

Claims 1 and 8 should be amended to the claim language as shown below. Claims 2-7 and 9-12 are cancelled herein. The complete set of claims will **replace** with the claims 1-12 as filed on November 27, 2008 as following:

Claim 1 (Currently Amended): A computer system comprising a processor and a data storage space, containing a database accelerator, that is comprised of:

a processor; [(\*)] a primary system that holds data records having data items including primary keys[.]; said primary system includes:

[(A)] a primary blocks that store the data records in the order of their primary keys[.]; and [(B)] a location table that is positioned in a contiguous region and contains location table entries where said location table entries contain addresses of at least one primary block[.]; ~~any~~ due to all modifications to the location table ~~caused by~~ ~~due to~~ data addition, update, and deletion causing [(es)] a data modification within the block[.]; ~~causes~~ said primary system [(to)] transmits said modifications ~~information of a location of any modification in the location table~~ and a content of modification to an accelerator system; and [(an)] the accelerator system that has a frond location table holding contiguous frond location table entries indicating the blocks that are identical to the location table entries of each primary block[.]; said accelerator system has: [(A)] a communication mechanism that receives the modification information from the primary system due to the modification within the block because of the data addition, update, and data deletion [.]; ~~if any modification occurs to the location table due to the location table due to the data addition, update, and deletion causing data modification within the block, then the communication mechanism receives the modification information from the primary system~~ [(B)] a modification information application mechanism that performs necessary updating based on the modification information transmitted from the primary system[.]; and [(C)] retrieval mechanism using the primary key in said accelerator system where the accelerator system frond location table is used to perform a binary search to retrieve the frond location table entries with a target key value to determine an object block and that retrieval

relative to the record within the block is performed relative to the primary block or overflow block in the primary system.

Claim 2-7 (Canceled)

Claim 8 (Currently Amended): A computer system comprising a processor and a data storage, containing a database accelerator, that is comprised of:  
a processor; a primary system that holds data having data items including primary keys and alternate keys[[.]]; a primary blocks that store the data records in the order of their primary keys[[.]]; alternate key blocks that stores the alternate-key entries made up of alternate keys and primary keys in the alternate-key value order[[.]]; and an alternate-key location table that contains the alternate-key location table entry in a contiguous region[[.]]; ~~if the alternate-key location table is modified as the alternate-key entry within the alternate-key block is modified in the case that alternate-key modification occurs due to data addition, update, and deletion causing a data modification within the block, then~~ said primary system transmits information of a location of any modification in the alternate-key location table such as alternate-key location table entry number and a content of modification to an accelerator system upon modifying alternate-key location table as the alternate-key entry within the alternate-key block is modified in the case that alternate-key modification occurs due to data addition, update, and deletion causing a data modification within the block; and an accelerator system that has: a communication mechanism, ~~where if any modification occurs to the alternate-key location table due to data addition, update, and deletion causing a data modification within the alternate-key~~

block, then the communication mechanism receives the modification information from the primary system the block that receives modification information from the primary system regarding any modification to the alternate key location table due to data addition, update, and deletion causing data modification within the alternate-key block while transmitting information for completing the application of the modification information to the primary system upon completion of the modification information; and a modification information application mechanism that performs necessary updating based on the modification information transmitted from the primary system[[,]]; and retrieval using the alternate-key in said accelerator system is such that the accelerator system frond alternate key location table is used to perform a binary search to retrieve the frond alternate-key location table entries with a target key value to determine an object alternate-key block and that retrieval relative to the record within the alternate-key block is performed relative to the alternate-key block in the primary system.

Claims 9-12 (Canceled)

### ***ALLOWANCE***

5. Claims 1 and 8 are allowed over the prior art made of record.

### ***REASON FOR ALLOWANCE***

6. The prior art of record, Tamatsu (U.S. Publication 2001/0011321 A1) describe a system for storing information sequentially in blocks, using overflow blocks for storage when the insertion of information causes an overflow, using location tables or alternate-key blocks that

manage storage blocks rather than using indices, and performing retrievals from these location tables or alternate-key blocks enables high-speed storage and reading, improves the efficiency of information storage and minimizes the occurrence of deadlock (*See Tamatsu Par. 5*) and since overflow blocks are not managed in the location table, records are not inserted into the location table, the time it takes to re-write the location table is minimized and re-writing of the location table is a single record. Therefore, the range of any exclusion that may occur is radically minimized and the possibility of a deadlock is greatly reduced (*See Tamatsu Par. 7*), Levy et al. describe a method uses a plurality of execution machines with separate memory units and allow the accelerator to have larger memory address space to access by a single execution machine for executing the query for accessing data in the database (*See Levy et al. Par. 9*), and Fujiwawa et al. (U.S. Publication 2003/0013445 A1) describe a mobile communication terminal location registration method for registering, with a mobile communication network, location registration area information indicating which location registration area a mobile communication terminal belongs to (*See Fujiwawa et al. Par. 9*) and also, the control unit would updates the location table based on the received terminal identification number and always make the location table up-to-date (*See Fujiwara et al. Par. 136*). However, after careful consideration of the amendment (pages 2-10) filed November 27, 2008, the applicant extensively and specifically pointed out how the claim amendments overcome the prior art of the record, particularly in Tamatsu the storage blocks would be created in advance and any modification to the location would be used toward the indices but not to the location table. Also, the location table would be updated based on any

addition, deletion, and modification within the block and the primary system is responsible for transmitting the modification information to a location table.

7. This allowable feature is indicated in independent claims 1 and 8 (system claims), provides *"a primary blocks that store the data records in the order of their primary keys; and a location table that is positioned in a contiguous region and contains location table entries where said location table entries contain addresses of at least one primary block; due to all modifications to the location table caused by data addition, update, and deletion causing a data modification within the block; said primary system transmits said modifications and a content of modification to an accelerator system; and the accelerator system that has a frond location table holding contiguous frond location table entries indicating the blocks that are identical to the location table entries of each primary block"* as recited in independent claims 1 and 8 in combination with the remaining elements as cited in claims 1 and 8 (system claims). The prior art made of record, do not disclose, teach, or suggest (in combination with all other features in the claim), the claimed limitations of system of claims 1 and 8 as a whole. Consequently, independent claims 1 and 8 as amended are allowable over prior art.

### ***CONCLUSION***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fariborz Khoshnoodi whose telephone number is 571-270-1005. The examiner can normally be reached on M-TH every other F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on 571-272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fariborz Khoshnoodi  
Examiner  
Art Unit 2164

/FK/

/Charles Rones/

Supervisory Patent Examiner, Art Unit 2164